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IMAGERY
ANALYSIS
DIVISION

PIR

PHOTOGRAPHIC INTELLIGENCE REPORT

ISODENSITY ANALYSIS OF THE BILLBOARD ANTENNA AT RADAR SITE I SARY SHAGAN ANTIMISSILE TEST CENTER, USSR

Declassification Review by NIMA/DoD

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CIA/PIR 61099

DATE Feb 1966

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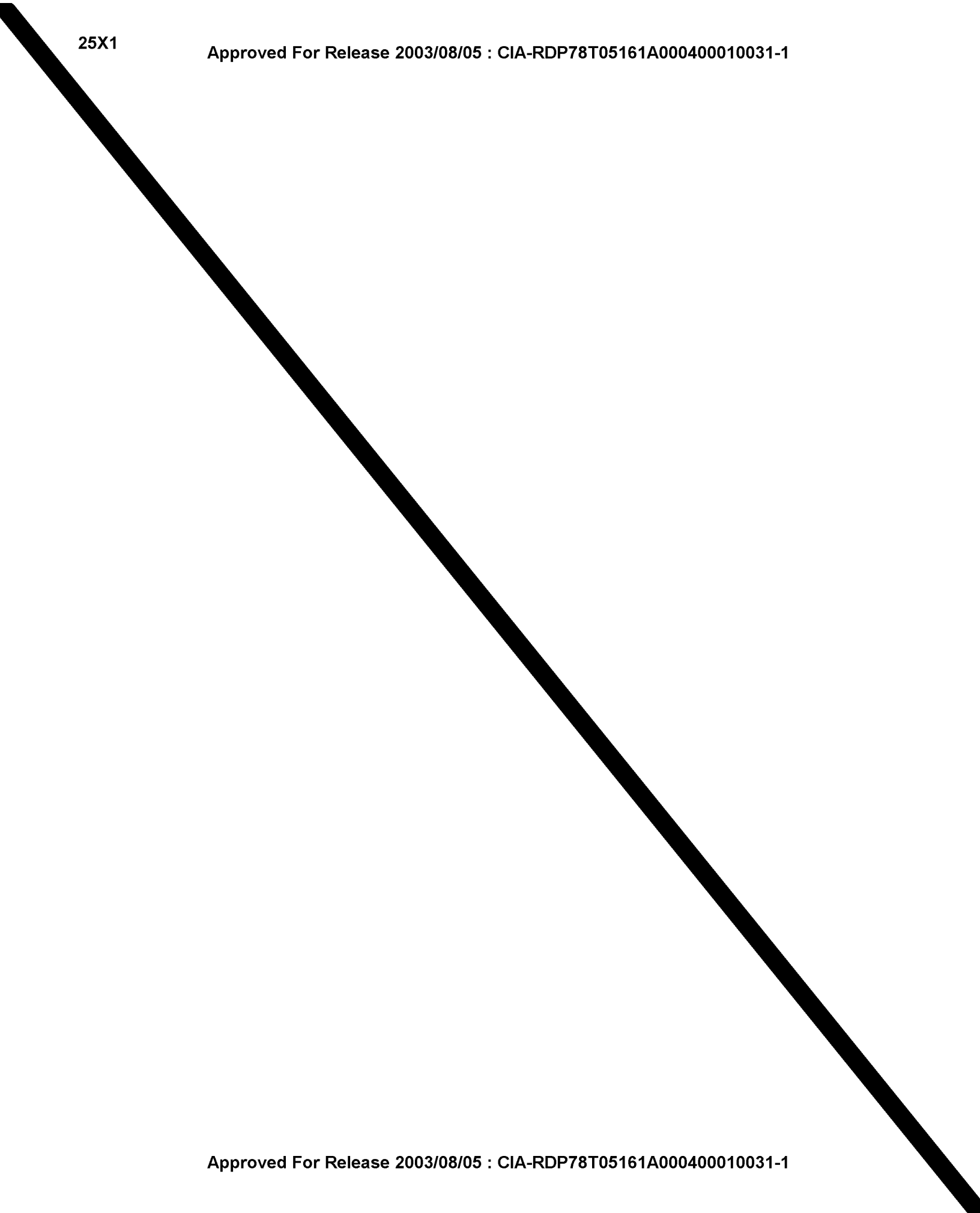

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CIA IMAGERY ANALYSIS DIVISION

CIA/PIR-61099

ISODENSITY ANALYSIS OF THE BILLBOARD ANTENNA AT RADAR SITE 1, SARY SHAGAN ANTIMISSILE TEST CENTER, USSR

This report presents photographic and isodensity trace analysis of the BILLBOARD antenna at Radar Site 1, Sary Shagan Antimissile Test Center, USSR (Figures 1 and 2). This analysis was performed in an attempt to determine the surface configuration of the face of the suspect reflecting antenna and the suspect ground plane.

Imagery from the referenced good quality missions was used in both the photographic and the isodensity trace analysis of the antenna. The trace shown (Figure 3) was originally made at a magnification of 1000X and a density increment of .03D. For the convenience of this report however, the overall size of the isodensity trace was photographically reduced by 30 percent.

The code in the recorded lines of the trace map indicates the amount of density change in pre-set increments and also show whether the density is increasing or decreasing. When the density is increasing, the three symbol code line is printed in the sequence: blank-dot-line-blank-dot-line. Whenever the density is decreasing, the symbol sequence changes to: line-dot-blank-line-dot-blank. Each symbol in the sequence represents a density increment and is continuously plotted until the density in the photography changes by that increment; then the next symbol in the sequence is plotted.

The trace map must be viewed in conjunction with the photographic image from which the trace was produced. The quality and scale of the image relates directly to the results achieved. Caution must be used in establishing whether any minute density gradient portrayed in the recording relates directly to an object configuration.

Analysis of a number of isodensity recordings and the photography of the BILLBOARD antenna revealed no indications of any elevation differences between the different segments of the suspect ground plane, nor any evidence of an electronic fence between, or in, any of the segments. The scale and quality of the photography precludes photographic and isodensity trace analysis of the suspect reflecting antenna face.

Further analysis of the photography revealed a tower located adjacent to the southern end of the suspect reflecting antenna. A second possible tower is located adjacent to the northern end of the suspect reflecting

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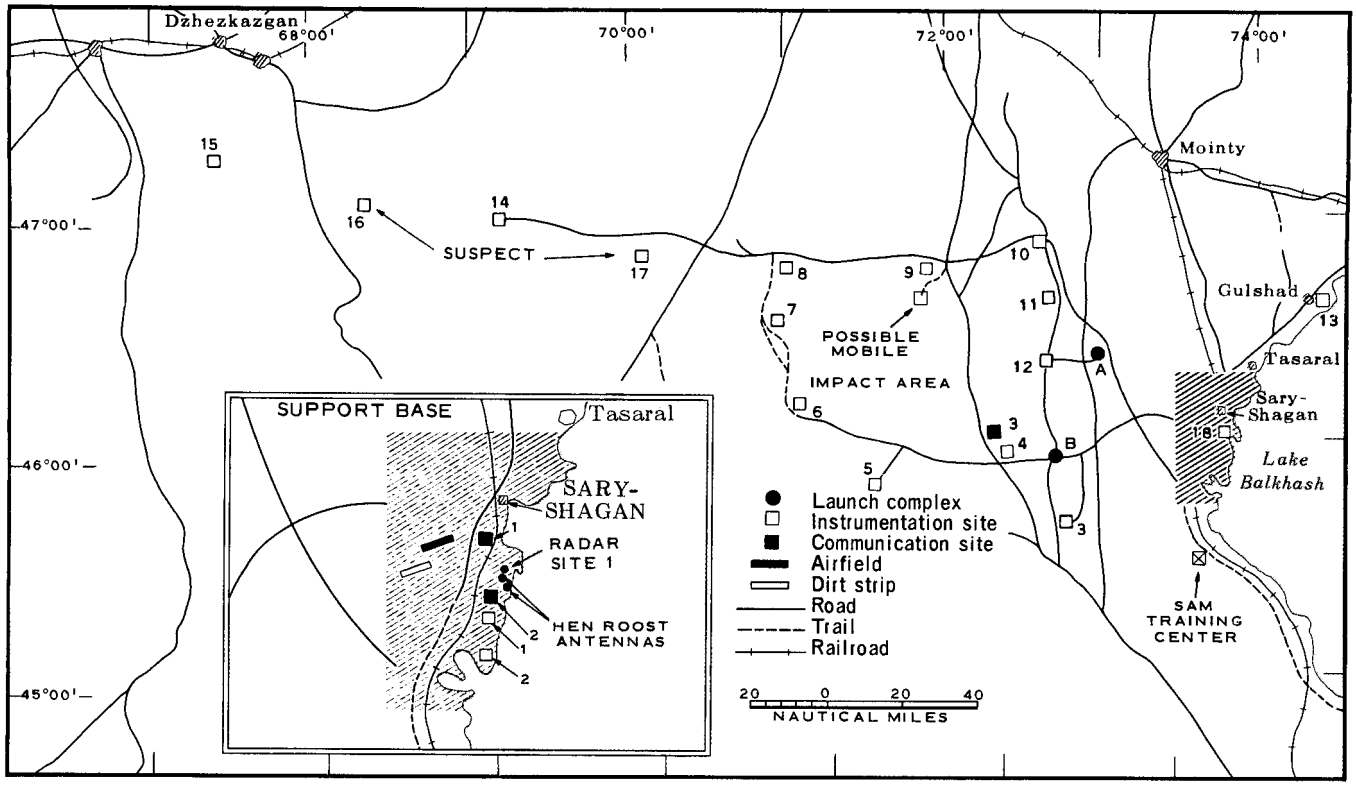
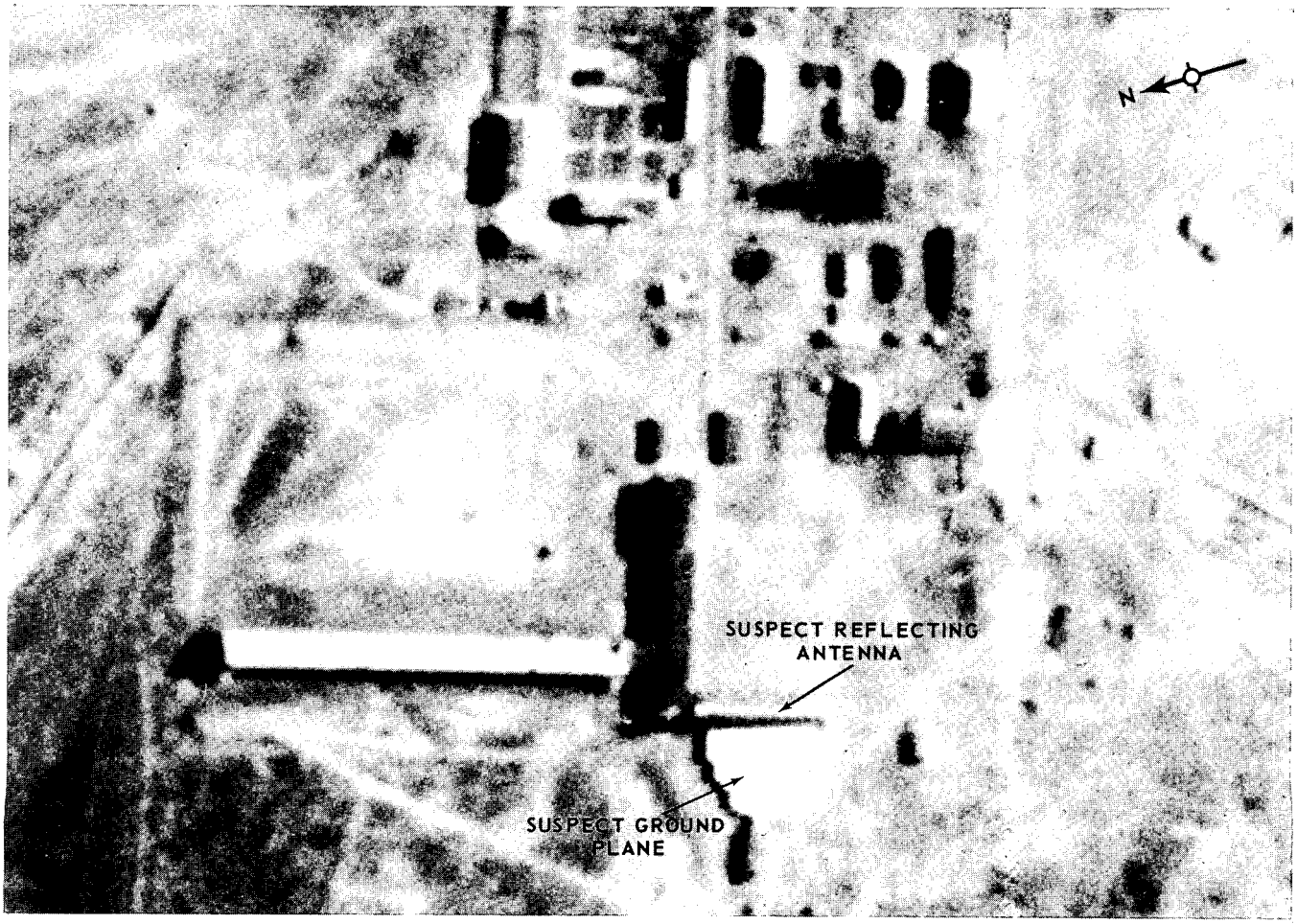


FIGURE 1. RADAR SITE, ANTIMISSILE TEST CENTER, SARY-SHAGAN, USSR.



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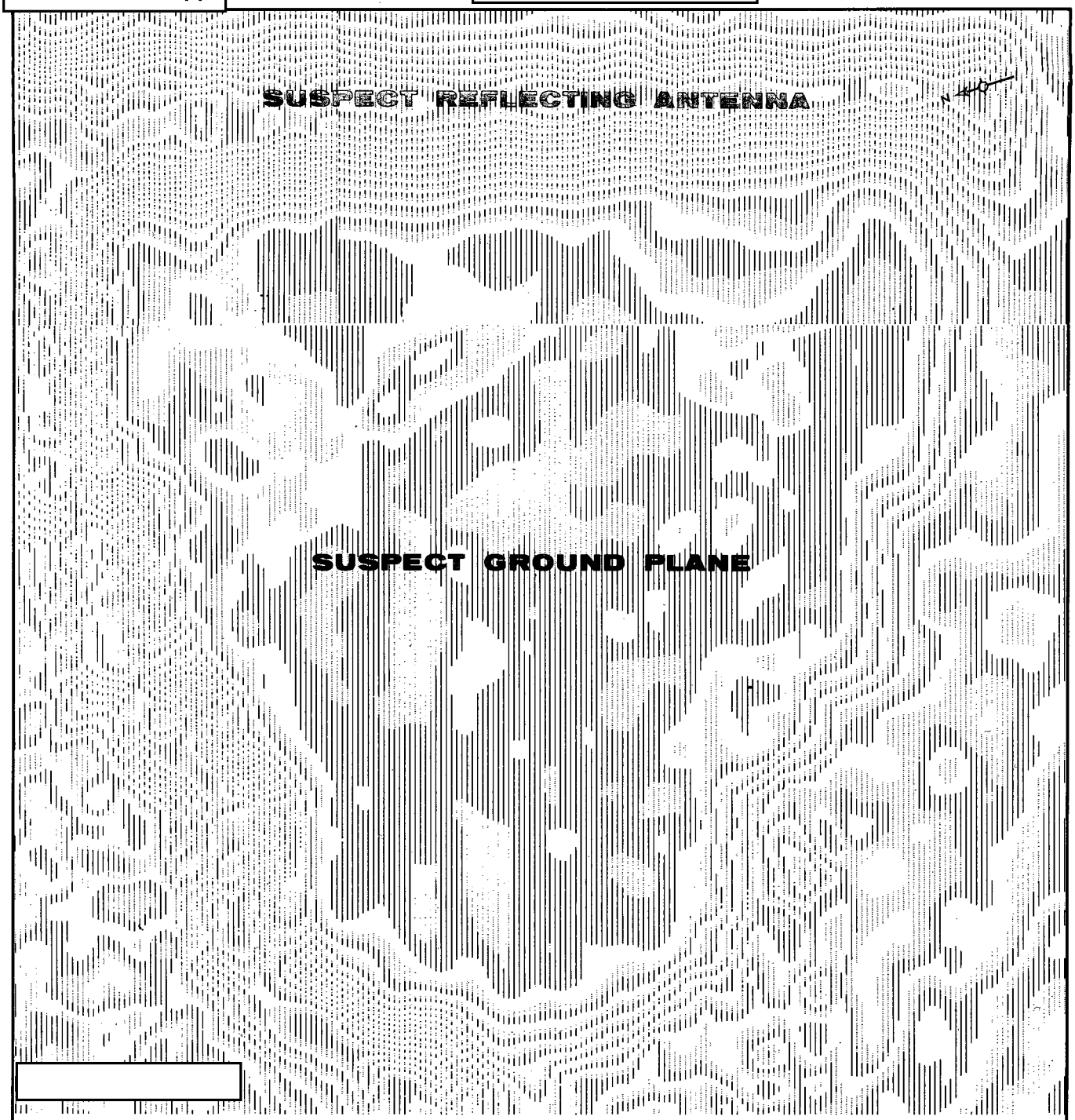

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CAUTION STATEMENT

The density information contained in this coded isodensity trace map is directly related to the density of the image that was scanned. The map effectively portrays the density contours of the image at an expanded scale, thus making evident small density changes. The trace map must be analyzed in conjunction with the original image, not as a separate representation of the subject. The image degradations, caused by the photographic system limitations, also degrade the isodensity map. CAUTION is recommended in establishing whether any minute density gradient portrayed in the map relates directly to an object configuration. An irregular object may sometimes appear regular, and vice-versa, due to illumination angle and surface reflectivity. For example: object color, texture, shadows falling across the object, displacement due to obliquity, and image edge gradient, are only some of the factors which must be considered. Consequently a concurrent perceptual and objective analysis of the density contour map, and the image, must consider all known factors.

This isodensity trace was made with a density increment of .03D at a 1000 time magnification, then reduced 30% photographically for report convenience.

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antenna. The height of neither tower can be determined at this time because the ends of the shadows are lost among other shadows in the area. However, the portion of the shadows that are visible indicate that the towers are nearly the same height as the suspect reflecting antenna, which has been previously reported as 110 feet high. A possible function for the towers cannot be determined at this time.

REFERENCES

PHOTOGRAPHY 25X1

[redacted]

DOCUMENTS

X1 CIA. [redacted] Dual HEN HOUSE Radar Sites - Angarsk, Sary Shagan, and Olenegorsk, USSR, April 1965 (TOP SECRET [redacted] 25X1

X1 CIA. PIR-61067, [redacted] Analysis of Select [redacted] Activity at Launch Complexes A and B, Sary Shagan Antimissile Test Center, USSR, November 1965 (TOP SECRET [redacted] 25X1 25X1

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